IN Cell Analyzer 2500*HS* and 6500*HS*

Operating Instructions

Original instructions

Contents

1 Introduction

About this chapter

This chapter contains important user information, safety notices, regulatory information, and a general description of the intended use of the IN Cell Analyzer.

1.1 About this manual

Purpose of the *Operating Instructions*

The *Operating Instructions* provide you with the instructions needed to install, operate, and maintain the IN Cell Analyzer in a safe way.

Typographical conventions

Software items are identified in the text by **bold** text. A colon separates menu levels (for example, **File:Open** refers to the **Open** command in the **File** menu).

Hardware controls, indicators, and connections are also identified in the text by **bold** text (for example, **Power** switch).

1.2 Important user information

Read this before operating the system

All users must read the entire IN Cell Analyzer 2500*HS* and 6500*HS Operating Instructions* before operating or maintaining the instrument.

Do not operate the IN Cell Analyzer in any way other than described in either these *Operating Instructions* or other user documentation from GE. Otherwise, you may be exposed to hazards that can lead to personal injury and/or you may cause damage to the equipment.

Intended use

The IN Cell Analyzer is intended for research purposes only. It is intended to be used by trained laboratory staff members in research laboratories at departments within academia and industry.

The IN Cell Analyzer is not approved for diagnosis of disease in humans or animals and shall not be used in any clinical procedures or for diagnostic purposes.

Prerequisites

In order to operate the system safely and according to the intended purpose, the following prerequisites must be met:

- You should be acquainted with the use of general laboratory equipment and with the handling of biological materials.
- You should be familiar with the basics of fluorescence microscopy.
- You should have an understanding of image processing basics to use the system to its full potential.
- You should have a general understanding of the use of a personal computer running Microsoft™ Windows™ in the version provided with your product.
- You must read and completely understand the contents of “Chapter 2: Safety Instructions” in these *Operating Instructions*.
- The system must be installed by a qualified GE Healthcare representative.

Safety notices

These *Operating Instructions* contain WARNINGS, CAUTIONS, and NOTICES concerning safe use of the product, with meanings as defined below.

Warnings

WARNING
WARNING indicates a hazardous situation which, if not avoided, could result in death or serious personal injury. It is important not to proceed until all stated conditions are met and clearly understood.

Laser Warnings

WARNING: LASER RADIATION:
WARNING: LASER RADIATION indicates a hazardous situation which, if not avoided, could result in serious injury due to hazardous radiation. It is important not to proceed until all stated conditions are met and clearly understood.

Cautions

CAUTION
CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury or damage to the equipment or software. It is important not to proceed until all stated conditions are met and clearly understood.

Notices

NOTICE
NOTICE indicates instructions that must be followed to avoid damage to the product or other equipment.

Notes and tips

Note: *A Note is used to indicate information that is important for trouble-free and optimal use of the product.*

Tip: *A Tip contains useful information that can improve or optimize your procedures.*

1.3 Regulatory information

This section lists the directives and standards that are fulfilled by the IN Cell Analyzer.

Manufacturing information

The table below summarizes the required manufacturing information. For further information, see the CE Declaration of Conformity document.

Requirement	Content
Name and address of manufacturer	GE Healthcare 1040 12th Avenue Northwest Issaquah, WA 98027 USA
Identity of person authorized to sign Declaration of Conformity	See CE Declaration of Conformity

CE conformity

Directive	Title
2006/42/EC	Machinery Directive (MD)
2014/35/EU	Low Voltage Directive (LVD)
2014/30/EU	ElectroMagnetic Compatibility (EMC) Directive
2011/65/EU	Restriction of Hazardous Substances (RoHS) Directive

CE marking

CE

The CE marking and the corresponding Declaration of Conformity is valid for the instrument when it is:

- used as a stand-alone unit, or
- connected to other CE-marked instruments, or
- connected to other products recommended or described in the user documentation, and
- used in the same state as it was delivered from GE, except for alterations described in the user documentation or explicitly authorized by GE.

Laser requirements

This instrument meets the laser radiation safety requirements specified in CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50 dated July 24, 2007.

RCM certification

This symbol indicates that the system complies with the requirements for electromagnetic compliance (EMC) in Australia and New Zealand.

Canadian certification

Industry Canada has Mutual Recognition Agreements/Arrangements (MRA) with USA, Europe, and few other countries. This MRA allows the products manufactured and tested in Europe and in USA to be sold in Canada. However, the testing shall meet all the criteria outlined in ICES-001 (i.e., radiation and emission limits per CISPR 11 and IEC 61326) and tested at nominal voltage and frequency (i.e., 120V/60Hz). As such, products tested at 230V/50Hz per EN 61326 for EU market will require additional testing to meet the ICES-001 criteria. For products tested at 120V/60Hz for FCC part 15B for US market with test measurements under the limits set by ICES-001 standard, no additional testing is required.

Korean certification

Korean Radio Research Agency Notification

This symbol indicates that the product complies with the Korean standard Radio Research Agency Notification 2014-16, Nov. 17, 2014 to meet with the Korean Radio Waves Act 2010 regulation.

Applicant name: GE Healthcare
Basic model name: IN Cell Analyzer 2500*HS* and IN Cell Analyzer 6500*HS*
Identification Code: MSIP-REM-1GE-INCA2500 and MSIP-REM-1GE-INCA6500

NOTICE
This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.

이 기기는 업무용 환경에서 사용할 목적으로 적합성 평가를 받

가정용 환경에서 사용하는 경우 전파간섭의 이 기기는 업무용 환경에서 사용할 목적으로 적합성 평가를 받

은 기기로서 , 가정용 환경에서 사용하는 경우 전파간섭의 우려가

있습니다 .

Eurasion Customs Union

Introduction

This section contains additional regulatory information to comply with the Eurasian Customs Union technical regulations.

Manufacturer and importer information

Requirement	Information
Name and address of manufacturer	See *Section 1.3, Regulatory information, on page 9*
Telephone number of manufacturer	Telephone: +46 771 400 600
Importer and/or company for obtaining information about importer	GE Healthcare LLC GE Healthcare Life Sciences Presnenskaya nab, 10C, 12th floor RU-123 317 Moscow, Russian Federation Telephone 1: +7 495 411 9714 Fax nr: +7 495 739 6932 Email: LSrus@ge.com
TR CU 004/2011	Safety of low-voltage equipment
TR CU 020/2011	Electromagnetic Compatibility of Technical Products

Shelf life and manufacturing date

For information regarding shelf life, contact your local GE representative. For information regarding manufacturing date, see year and month of manufacture on the product.

Regulatory compliance of connected equipment

Any equipment connected to the IN Cell Analyzer must meet the safety requirements of EN 61010-1/IEC61010-1 or other relevant harmonized standards. Within the European Union, connected equipment must be CE-marked.

International standards

This product fulfills the requirements of the following standards:

Standard	Description	Notes
EN 61010-1, IEC 61010-1, UL61010-1, CAN/CSA-C22.2 no. 61010-1	Safety requirements for electrical equipment for measurement, control, and laboratory use	EN harmonized with EU directive 2014/35/EU
EN 61326-1 (Emission according to CISPR 11, Group 1, Class A)	EMC emissions and immunity requirements for measurement, control, and laboratory use	EN harmonized with EU directive 2014/30/EU
EN ISO 12100	Safety of machinery. General principles for design. Risk assessment and risk reduction.	EN ISO standard is harmonized with EU directive 2006/42/EC
EN60825-1 IEC60825-1	Safety of Laser Products - Base standard for safety of laser products	EN harmonized with EU directive 2014/35/EU
EN 50581:2012	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances	EN harmonized with EU directive 2011/65/EU

FCC compliance

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: *The user is cautioned that any changes or modifications not expressly approved by GE could void the user's authority to operate the equipment*.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Environmental conformity

Regulation	Title
2011/65/EU	Restriction of Hazardous Substances (RoHS) Directive
2012/19/EU	Waste Electrical and Electronic Equipment (WEEE) Directive
Regulation (EC) No. 1907/2006	Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH)
ACPEIP	Administration on the Control of Pollution Caused by Electronic Information Products, China Restriction of Hazardous Substances (RoHS)

1.4 Instrument hardware and software

The IN Cell Analyzer consists of two main components:

- Imager
- Workstation

Imager

The Imager houses the following parts of the IN Cell Analyzer. These parts are not accessible to the user.

- Multispectral illumination
- Objective lens turret
- Laser AutoFocus module
- XY translation stage
- Emission filters
- Camera
- Control electronics

The Imager is enclosed with cover pieces to keep out light and dust. The emission optics are in a positive pressure environment to keep them clean. A filter on the intake ensures only clean air is allowed in this area.

The following components are optional equipment available for the system.

- Live Cell Module and associated components (humidifier bottle, Live Cell Sample Lid, etc.)
- Liquid Handler and associated components (wash bottle, reagent bottle, waste jar, overflow jar, etc.)

Workstation

The workstation is a computer and monitor from which the operator controls the IN Cell Analyzer system. The workstation computer uses a 64-bit Windows 10 operating system.

The workstation runs the software used to define and set up imaging experiments, conduct experiments, and analyze images.

NOTICE
Any computer used with the equipment shall comply with IEC 60950 and be installed and used according to the manufacturer's instructions.

2 Safety Instructions

About this chapter

This chapter describes the hazard and safety information necessary for operation of the IN Cell Analyzer, including emergency shutdown procedures and recycling instructions. The precautions detailed in this chapter must be carefully observed to prevent possible personal danger.

WARNING
Before installing, operating, or maintaining the product, all users must read and understand the entire contents of this chapter.

:

2.1 General precautions

Before operating or maintaining the system, you must be aware of the hazards described in the user documentation. Follow these instructions carefully to avoid personal injury or damage to the equipment..

WARNING
The system operator is assumed to be trained in the correct operation of the instrument and the safety issues associated with using it.

WARNING
Using controls, making adjustments, or performing procedures other than those specified in the IN Cell Analyzer's documentation can result in hazardous exposure to high voltage, laser radiation, or moving parts. Exposure to these hazards can cause severe personal injury. Do not operate the IN Cell Analyzer except as described in the documentation.

WARNING
The IN Cell Analyzer is used for a wide variety of experiments that may utilize potentially hazardous materials. Use of these materials may cause exposure to biological or chemical hazards. Educate yourself about your samples to avoid hazards.

WARNING
The IN Cell Analyzer contains AC power. Ensure that all power has been turned off prior to removing any side panels.

WARNING
Always use protective glasses and appropriate personal protective equipment during system operation and service.

WARNING
Do not use the IN Cell Analyzer if it is not working properly or if it has suffered any damage (for example, damage to the power cord or plug).

WARNING
Use of controls or adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

WARNING
Do not block the ventilation inlets or outlets on the system.

2.2 Laser Autofocus Module

The Laser Autofocus Module contains a 90 mW, 780nm, continuous wave diode laser. Access to the beam path is prevented by the use of covers and other system parts that shield the operator from the beam.

User-maintainable parts are not located in the beam path. The only access point for the beam during operation or maintenance is through the objective lens. The interlocked cover door is always closed when imaging.

WARNING
The IN Cell Analyzer is a Class 1 laser system. No access to laser radiation is permitted during user operation or user maintenance. During service, however, Class 3B (IN Cell 2500*HS*) and Class 4 (IN Cell 6500*HS*) radiation is accessible.

Due to the potential for personal injury, particularly to the eyes, service on the IN Cell Analyzer should ONLY be performed by GE personnel or persons trained by GE specifically for this purpose. Unauthorized service by any other personnel may violate the warranty.

2.3 Personal protection

CAUTION
Always use appropriate personal protective equipment during operation and maintenance of the IN Cell Analyzer.

CAUTION
Hazardous substances. When using hazardous chemicals and biological agents, take all suitable protective measures, such as wearing protective glasses and gloves resistant to the substances used. Follow local and/or national regulations for safe operation, maintenance, and decommissioning of the equipment.

CAUTION
Be aware of potential pinch points when the instrument is turned on. Moving parts can cause injury.

WARNING
The IN Cell Analyzer contains AC power. Ensure that power has been shut off prior to opening any housings. All outlets must be grounded. All outlets must be accessible by operators in case an emergency shutdown is required.

WARNING
Use only power cords delivered or approved by GE Healthcare.

WARNING
Do not place containers of liquid on top of the instrument. Spilled liquid is a fire and electrical hazard.

2.4 Installation

NOTICE
Do not unpack the IN Cell Analyzer or attempt to perform any installation tasks upon its arrival at your site. An authorized GE representative will perform all unpacking and installation tasks. Unpacking by any person not authorized by GE constitutes responsibility for the equipment and any damage that may have occurred during shipment.

WARNING
Protective ground. The IN Cell Analyzer must always be connected to a grounded power outlet.

WARNING
Only use power cords delivered or approved by GE.

WARNING
Do not block access to the power switches or power cords. The power switches must always be easy to access. The power cords with plugs must always be easy to disconnect.

CAUTION
Supply voltage. Make sure that the supply voltage at the wall outlet corresponds to the marking on the instrument, before connecting the power cord.

NOTICE
Vents on the IN Cell Analyzer. To ensure adequate ventilation, keep all objects away from the vents on the system.

NOTICE
Disconnect power. To prevent equipment damage, always switch off power to the IN Cell Analyzer before any component cable is connected or disconnected.

NOTICE
Any computer used with the equipment shall comply with IEC 60950 and be installed and used according to the manufacturer's instructions.

2.5 Electrical safety

All of the IN Cell Analyzer electrical components comply with CE and other applicable standards, such as UL, CSA, and IEC. Follow the electrical safety information in this section to ensure that you are operating the system safely.

WARNING
High voltage electronics may be found in some system components. During normal operation, you are protected from high voltage.

CAUTION
Before using the system, ensure that the system is clean and dry. Any problems must be taken care of before the system power is turned on.

WARNING
The system is intended to operate from a power source that does not apply more than 100-120/200-240V (50-60 Hz) between supply conductors or between either supply conductor and ground. A protective ground connection, by way of the grounding conductor in the power cord, is essential for safe operation.

WARNING
If any liquid is spilled on or around the instrument, unplug the instrument immediately and wipe up the spill. DO NOT PLUG THE SYSTEM INTO ANY POWER MAINS UNTIL THE PROBLEM IS RESOLVED.

WARNING
In case of fire, unplug the instrument. Ensure that the power connector is always accessible.

WARNING
Maintain easy access to power switch and power cord. Do not block the rear or side panels of the instrument. The power switch must always be easy to access and the power cord must always be easy to disconnect.

WARNING
Do not damage power supply cords by bending, twisting, heating, or allowing the cords to become pinned under the equipment. Using damaged power cords could result in fire or electric shock.
If a power supply cord is damaged, contact your local GE representative for a replacement.

2.6 Maintenance and decommissioning

WARNING
Electrical shock hazard. All repairs should be done by service personnel authorized by GE. Do not open any covers or replace any parts unless specifically directed to do so in the user documentation.

CAUTION
Disconnect power. Always switch off power to the system before replacing any of its components, unless stated otherwise in the user documentation.

CAUTION
Always use appropriate personal protective equipment when decommissioning the equipment.

CAUTION
Wipe the system with a damp tissue using a cleaning agent so that no hazardous solvents or biological agents remain on the surface.

2.7 Liquid Handling safety

The Liquid Handling Module allows you to perform experiments in which liquid is introduced to the microplate. Liquid samples are aspirated from either a reagent bottle or a compound plate, and are then dispensed into wells on the sample plate.

CAUTION
The aspiration needle could puncture the skin if touched. Under normal use, however, the Liquid Handling Module is enclosed within the instrument and is not accessible to the user.

The liquid handling system is designed with the following safety features:

- The liquid delivery is mounted on a breakaway carrier.
- The system has containment features to manage small spills that direct liquid to a drain for cleanup.
- Containment features also keep spills away from electrical components.

2.8 System operation

To turn on the IN Cell Analyzer:

1 Turn on the workstation and log on.

2 Turn on the imaging system hardware by depressing the system power switch (shown below) once.

Power Switch

During initialization, three lights will illuminate on the front of the instrument (Green, Orange, Red). The Green light will remain on after the instrument plate stage door has opened and closed, indicating that initialization is complete.

3 Once the Green light turns on, signifying that initialization is complete, launch the acquisition software by clicking **Start:All Programs:IN Cell Analyzer 2500/6500:IN Cell Analyzer**.

To shut down the IN Cell Analyzer:

1 Choose one of the following:

- Click **Application:Hardware:Shutdown Instrument**.

  or

- Press down on the system power switch for one second. After a two-minute delay, the system should shut down. If it does not, press the switch again.

  Note: *If the system still does not shut down, press and hold the power switch to perform a "hard" system shutdown.*

2 Turn off the PC and monitor.

2.9 System safety and identification labels

This section describes the IN Cell Analyzer 2500*HS* and IN Cell Analyzer 6500*HS* safety and identification labels and their locations on the scanner. It also shows the location of a general warning label meant to encourage users to read the documentation.

Laser safety labels - IN Cell Analyzer 2500*HS*

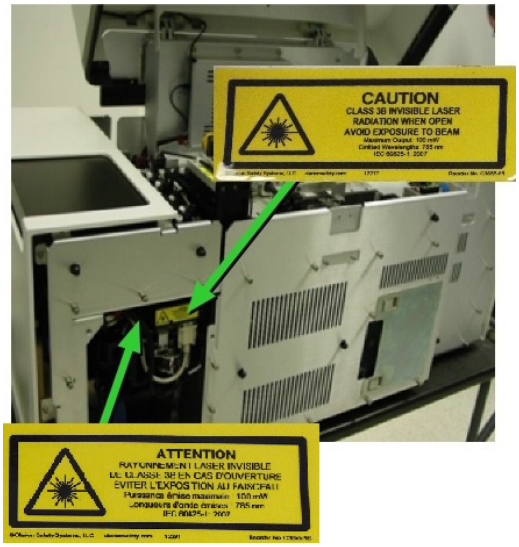
Class 3B 100 mW Laser Autofocus safety labels

The laser safety labels shown in the following figures are attached to the cover of the Laser Autofocus Module. These labels are not visible during operation or user maintenance, but are visible during service.

Class 3B 100 mW Laser Autofocus safety labels (English/French)

CAUTION
CLASS 3B INVISIBLE LASER RADIATION
WHEN OPEN
AVOID EXPOSURE TO BEAM

Locations of the Class 3B 100 mW Laser Autofocus safety labels



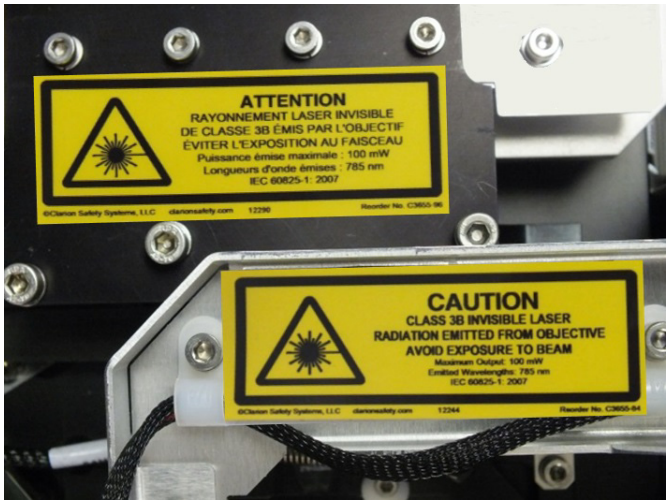
Class 3B 100 mW Transmitted Light Mounting Bracket safety label

The laser safety labels shown in the following figures are attached to the transmitted light mounting bracket, above the objective. They are not visible during operation or user maintenance, but are visible during service.

Class 3B 100 mW Laser Autofocus safety labels over objective (English/French)

CAUTION
CLASS 3B INVISIBLE LASER RADIATION
EMITTED FROM OBJECTIVE
AVOID EXPOSURE TO BEAM

Locations of the Class 3B 100 mW laser safety labels over objective



Class 3B Laser Interlock safety label

The laser interlock safety labels shown in the following figures are applied in two locations on the scanner. They are not visible during operation or user maintenance, but are visible during service..

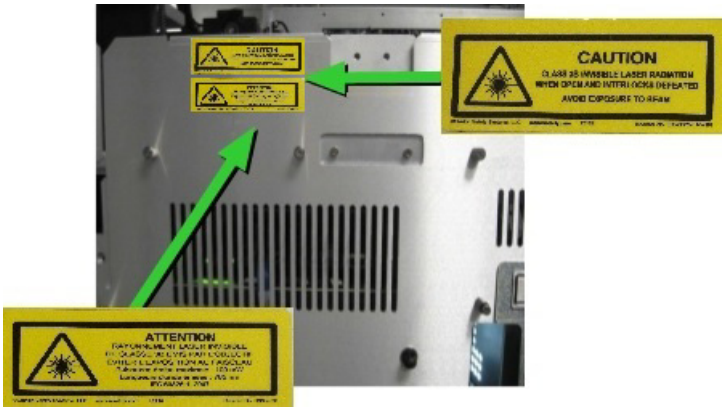
Class 3B Laser Interlock safety labels

CAUTION
CLASS 3B INVISIBLE LASER RADIATION
WHEN OPEN AND INTERLOCKS DEFEATED
AVOID EXPOSURE TO BEAM

The first location for the interlock safety labels is on the outside of the front metal chassis skin, as shown in the following figure.

Note: *Even though the label is located on the outside of the front metal chassis skin cover, the label refers to the top cover. The front metal chassis skin is not interlocked for laser safety. Removing the front metal chassis skin does not allow access to radiation.*

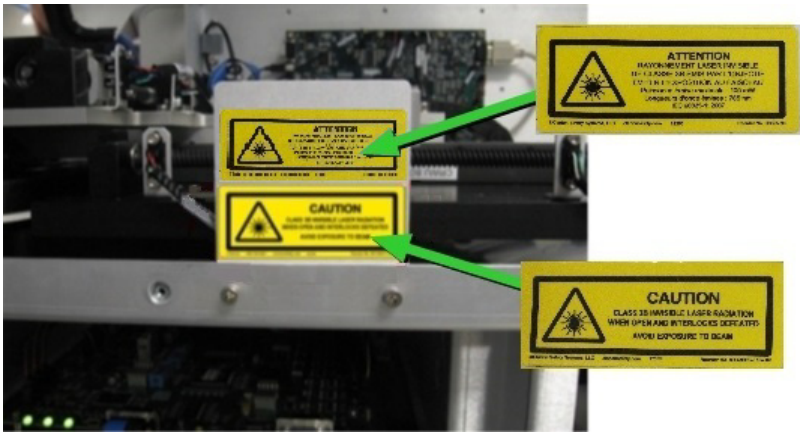
Class 3B Laser Interlock safety labels - Location 1



The second location for the interlock safety labels is on the left-front tab (behind the metal chassis cover) on the front of the scanner, as shown in the following figure.

Note: *This label is partially covered when the front metal chassis cover is attached to the system.*

Class 3B Laser Interlock safety labels - Location 2



Laser safety labels - IN Cell Analyzer 6500*HS*

Class 4 Laser Interlock Caution labels

The laser safety labels shown in the following figures are applied to the scanner in multiple locations. Not every location is visible during operation or user maintenance, but all are visible during service.

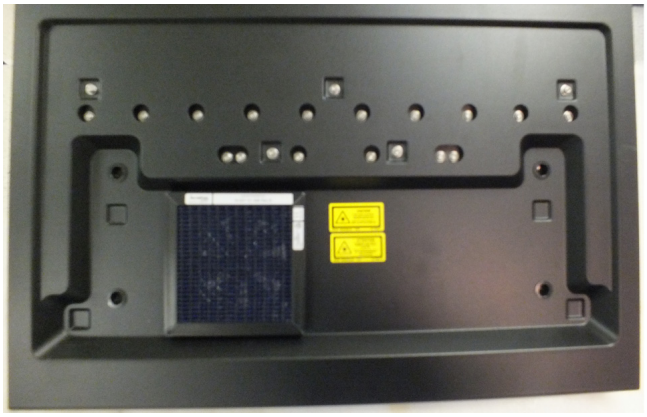
Class 4 Laser Interlock Caution labels (English/French)

CAUTION
CLASS 4 VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED.

AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION.

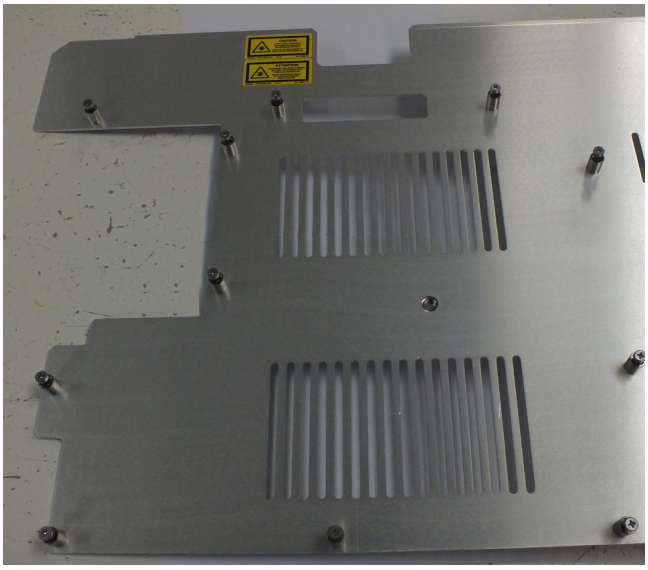
The Laser Interlock Caution safety labels are located under the filter cover panel.

Class 4 Laser Interlock Caution labels - under filter cover panel



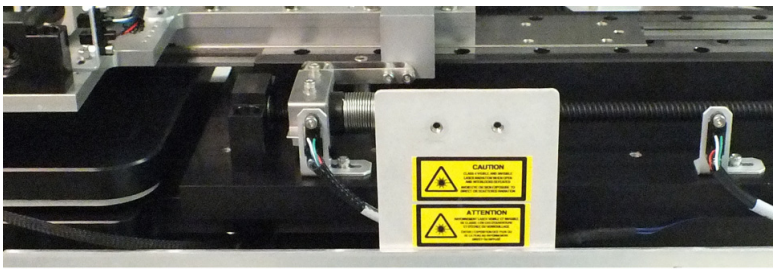
They are also located on the system's front panel.

Class 4 Laser Interlock Caution labels - front panel



Finally, the Laser Interlock Caution labels are also located behind the front panel and can only be viewed after the panel has been removed.

Class 4 Laser Interlock Caution labels - underneath front panel



Class 4 Laser Non-Interlock Caution labels

The laser safety labels shown in the following figures are applied to the scanner in several locations. Not every location shown in the following figures is visible during operation or user maintenance, but all are visible during service.I

Class 4 Laser Non-Interlock Caution labels (English/French)

CAUTION
CLASS 4 VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN.

AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION.

The Laser Non-Interlock Caution labels are attached to the front and rear optics access panels.

Class 4 Laser Non-Interlocked Caution labels - front and rear optics access panels

Optics – Front Panel

Optics – Back Panel

The Laser Non-Interlocked Caution labels are also located on the Hardware Autofocus (HWAF) Module. The English version is located as shown in the following figure. The French version of the label is located on the side of the module indicated by the green arrow.

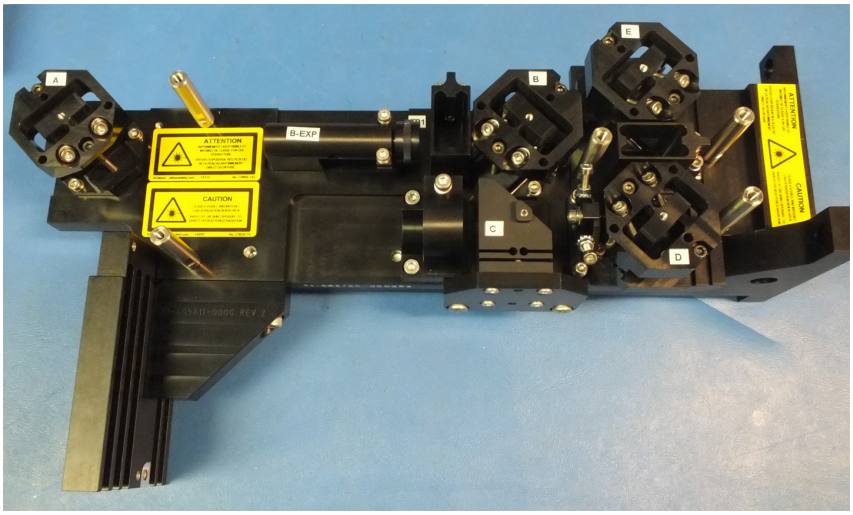
Class 4 Laser Non-Interlocked Caution labels - Hardware Autofocus Module

The same labels are also located in three locations on the cover of the Laser Module. Two sets of the labels are shown in the following figure. The third set is located on the end of the cover, as indicated by the green arrow.

Class 4 Laser Non-Interlocked Caution labels - Cover of the Laser Module

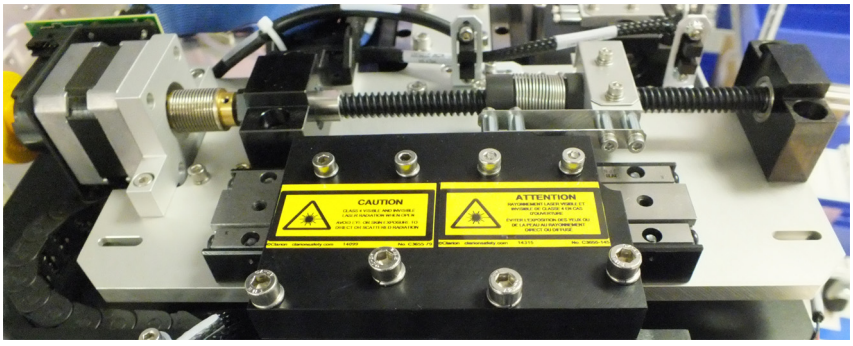
These labels are also located on the Laser Module itself, as shown in the following figure.

Class 4 Laser Non-Interlocked Caution labels - Laser Module



Finally, the Laser Non-Interlocked Caution labels are also located on the system stage, as shown in the following figure.

Class 4 Laser Non-Interlocked Caution labels - System Stage



General laser warning labels

The following general laser warning labels are applied by the laser manufacturer to the front of Multi-Laser Engine, as shown in the following figure.

General laser warning labels - Multi-Laser Engine

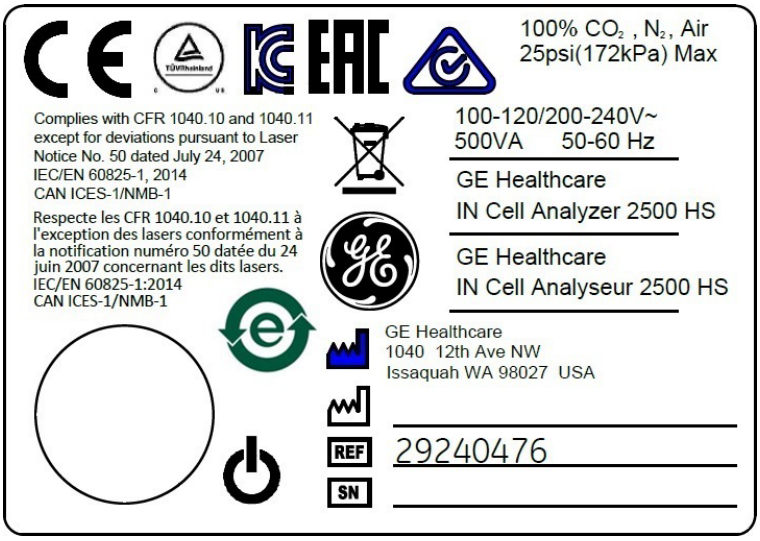
System identification and compliance labels (CE labels)

The IN Cell 2500*HS* and 6500*HS* each have their own system identification label, also known as their CE label. These labels are located on the right side of the systems near the power outlet, as shown in the following figure.

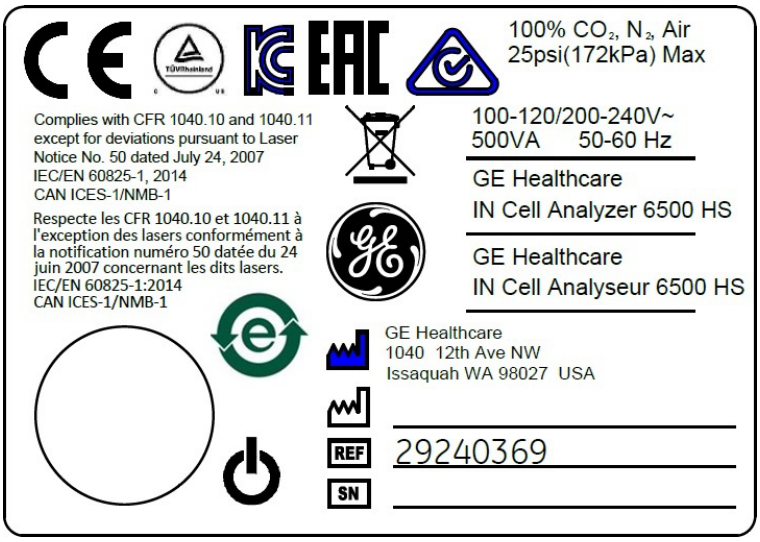
CE label location

The CE labels for each system are shown in the following figures.

IN Cell Analyzer 2500HS CE Label



IN Cell Analyzer 6500 CE Label



General warning label

This label is placed below the power switch. It is intended to encourage users to consult these Operating Instructions before turning on the instrument.

General warning label

General warning label location

Symbols used in safety labels

The following symbols are used on the system CE and safety labels.

Symbol	Meaning
	Read the operating instructions before using the system. Do not open any covers or replace any part unless specifically instructed to do so in the *Operating Instructions*.
	This symbol indicates that the system complies with the requirements for electromagnetic compliance (EMC) in Australia and New Zealand.
	This symbol indicates that the system complies with applicable European directives.
	This symbol indicates that the product complies with Korean standard Radio Research Agency Notification 2014-16, Nov. 17, 2014 to meet the Korean Radio Waves Act 2010 regulation.
	The Eurasian Conformity mark is the single conformity mark that indicates that the product is approved for circulation on the markets of the member states of the Eurasian Customs Union.
	WARNING: LASER RADIATION indicates a hazardous situation which, if not avoided, could result in serious injury due to hazardous radiation. It is important not to proceed until all stated conditions are met and clearly understood.
CAN ICES-1/ NMB-1	This ISM device complies with the Canadian ICES-001 Standard for Industrial, Scientific, and Medical (ISM) Radio Frequency Generators. Cet appareil ISM est conforme á la norme NMB-001 du Canada pour les industriels, scientifiques et médicaux (ISM) générateurs de fréquence Radio.

Symbol	Meaning
 	These marks indicate that the instrument has been listed by a Nationally Recognized Testing Laboratory (NRTL).

Labels concerning hazardous substances

The following symbols, when found on safety labels, apply to hazardous substances.

Symbol	Meaning
	This symbol indicates that electrical and electronic equipment waste must not be disposed of as unsorted municipal waste and must be collected separately. Please contact an authorized representative of the manufacturer for information concerning the decommissioning of equipment.
	This symbol indicates that this electrical and electronic product does not contain any hazardous substances above the maximum concentration value established by the Chinese standard GB/T 26572, and can be recycled after being discarded, and should not be casually discarded.

2.10 System cable and tubing placement and safety

Recommendations in this section, regarding the appropriate placement of the system's power cabling, environmental control, and liquid cooling components, must be followed in order to minimize the risk of personal injury.

Power cables

IN Cell Analyzer power cabling should always be routed to minimize trip hazards and arranged so that all system power can be easily and quickly disconnected in the event of an emergency.

CAUTION
Cables can be a trip hazard. Use caution when walking around the perimeter of the imaging system.

Overflow tubing (optional Liquid Handler only)

The IN Cell Analyzer's optional Liquid Handler uses external overflow tubing. Ensure that this tubing is routed so that it does not create a trip hazard.

CAUTION
Tubing can be a trip hazard. Use caution when walking around the perimeter of the imaging system.

Pressure safety (optional Live Cell Imaging Module only)

The tubing used for the optional Live Cell Imaging Module on the IN Cell Analyzer is rated at 115 psi maximum operating pressure.

CAUTION
Recommended pressure for the system's Clean Dry Air (CDA), CO_2 and N_2 (if using the CO_2/O_2 version of the Live Cell Imaging Module) is 25 psi.

2.11 Safety goggles

Because the IN Cell Analyzer is a Class 1 safety system, you are not required to wear safety goggles during regular system use. If, however, the safety interlock is defeated (for example, while the system is being serviced), the appropriate safety goggles must be worn.

Safety goggles that protect your eyes from all laser wavelengths are the best type to use in a multi-laser environment. These may be difficult to obtain, so the next best practice is to be absolutely certain you wear the correct safety goggles for each laser type being used.

2.12 Emergency procedures

This section describes how to perform an emergency shutdown of the system. It also describes what to do in the event of a power failure.

WARNING
Access to power switches and power cord plugs. Maintain easy access to all power switches and power cords. The power switches must always be easy to access and the power cords must always be readily accessible.

Emergency shutdown

In the event of an emergency:

1 Close the IN Cell Analyzer application.

2 Turn off the instrument at the main power switch.

3 Turn off the workstation and monitor from their main power switches.

Power failure

In the event of a power failure:

1 Turn off the instrument at the main power switch.

2 Turn off the workstation and monitor from their main power switches.

2.13 Recycling procedures

The equipment shall be decontaminated before decommissioning and all local regulations shall be followed with regard to scrapping of the equipment.

Disposal, general instructions

When taking a system out of service, the different materials must be separated and recycled according to national and local environmental regulations.

Decontamination

The equipment and the accessories must be clean from contaminants before decommissioning, and all local regulations with regard to waste disposal must be followed. Samples are to be disposed of according to local regulations.

Recycling of hazardous substances

The system uses hazardous substances. Detailed information is available from your local GE representative.

Disposal of waste materials

Microplates and any used materials from the instrument must be disposed of in the manner prescribed by national and local environmental regulations.

CAUTION
Hazardous waste must be handled and disposed of properly.

Disposal of electrical components

Electrical and electronic equipment waste must not be disposed of as unsorted municipal waste and must be collected separately. Please contact an authorized representative of GE for information concerning the decommissioning of your equipment.

CAUTION
The IN Cell Analyzer and Live Cell Imaging Module must not be disposed of as unsorted municipal waste and must be collected separately. Please contact an authorized representative of GE for information concerning the decommissioning of your equipment.

2.14 Declaration of hazardous substances

IN Cell Analyzer 2500*HS*/6500*HS*

根据 SJ/T11364-2014 《电子电气产品有害物质限制使用标识要求》特提供如下有关污染控制方面的信息。

The following product pollution control information is provided according to SJ/T11364-2014 Marking for Restriction of Hazardous Substances caused by electrical and electronic products.

1．电子信息产品污染控制标志说明 Explanation of Pollution Control Label

该标志表明本产品不含有超过中国标准 GB/T 26572 《电子信息产品中有害物质的限量要求》中限量的有害物质，报废后可以进行回收处理，不能随意丢弃。

This symbol indicates that this electrical and electronic product does not contain any hazardous substances above the maximum concentration value established by the Chinese standard GB/T 26572, and can be recycled after being discarded, and should not be casually discarded.

(Continued on next page)

2．有害物质的名称及含量 Name and Concentration of Hazardous Substances

产品中有害物质的名称及含量

Table of Hazardous Substances' Name and Concentration

	有害物质					
	Hazardous substances' name					
部件名称	铅	汞	镉	六价铬	多溴联苯	多溴二苯醚
Component Name	**(Pb)**	**(Hg)**	**(Cd)**	**(Cr6+)**	**(PBB)**	**(PBDE)**
电路板组件 Printed Circuit Board Assemblies	O	O	O	O	O	O
电源 Power Supplies	O	O	O	O	O	O
电缆 Cables	O	O	O	O	O	O
机械组件 Mechanical Assemblies	O	O	O	O	O	O
系统柜 System Cabinet	O	O	O	O	O	O
主机机架 / 底座组件 Frame / Chassis Assembly	O	O	O	O	O	O
摄像装置 Cameras	O	O	O	O	O	O
工作站 Workstation	O	O	O	O	O	O
固态照明组件 (适用于 2500*HS*) Solid State Illumination Assembly (2500*HS* only)	O	O	O	O	O	O
多路激光器引擎 (适用于 6500*HS*) Multi Laser Engine (6500*HS* only)	O	O	O	O	O	O
紧固件 Fasteners	O	O	O	X	O	O

本表格依据 SJ/T 11364 的规定编制。

This table is prepared according to SJ/T 11364.

O：表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。

X：表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。

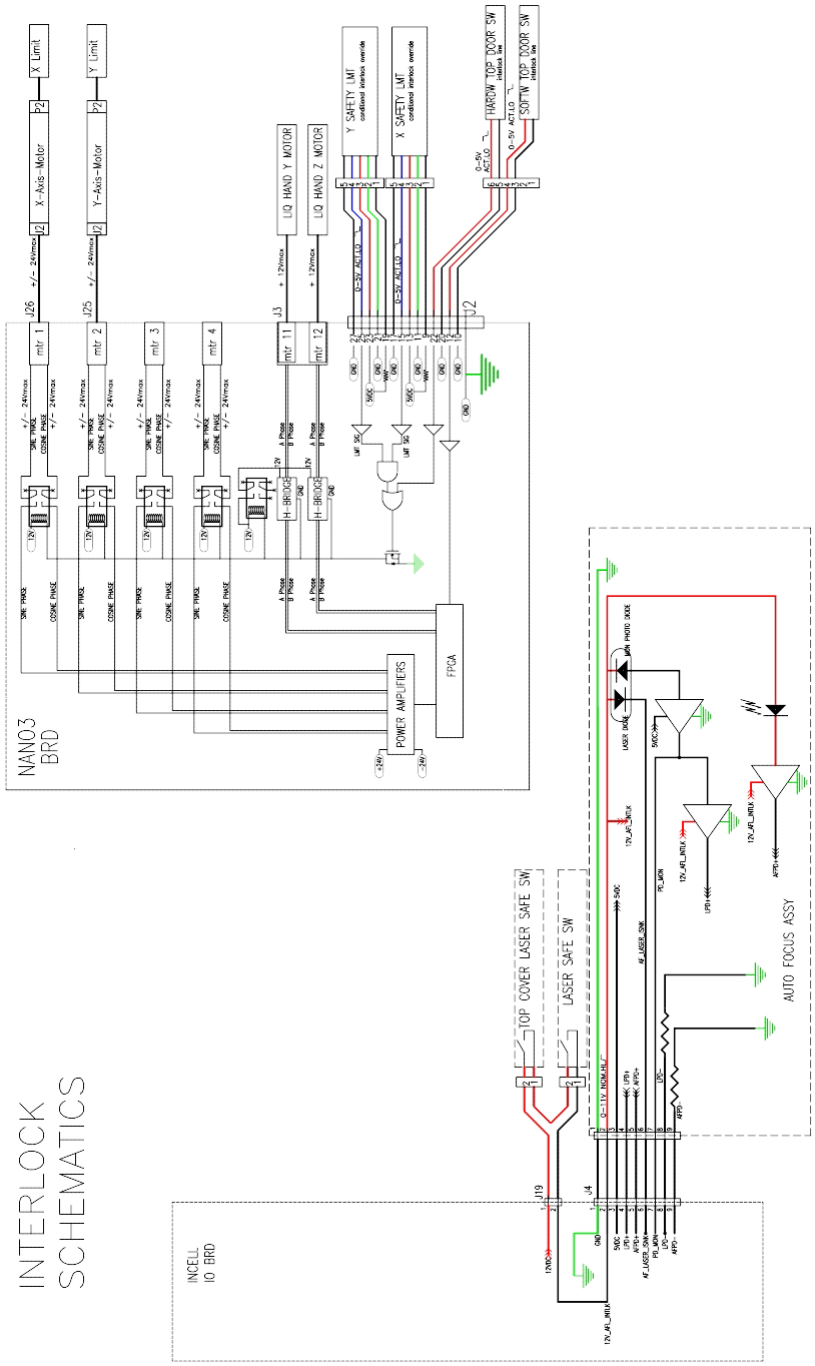
- 此表所列数据为发布时所能获得的最佳信息 .

O: Indicates that this hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in GB/T 26572.

X: Indicates that this hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in GB/T 26572.

- Data listed in the table represents the best information available at the time of publication.

2.15 Wiring diagram - Safety interlocks



3 Installation

About this chapter

This chapter describes the site requirements and other critical information needed for safe installation of the IN Cell Analyzer. Additional information can be found in the IN Cell Analyzer Site Preparation Guide available from your GE representative.

WARNING
The IN Cell Analyzer must be unpacked and installed by a qualified GE representative.

3.1 Delivery information and requirements

Shipping Containers

The system is shipped in a palletized crate, with the following measurements. These values may vary depending on the configuration of your system. If installation requires the use of an elevator, ensure that it is rated to carry the necessary weight.

Shipping Container	Approximate Size (L x W x H)	Approximate Weight
Pallet dimensions	135 x 89 x 119 cm (53 x 35 x 47 in.)	177 kg (390 lbs)

Handling of Shipping Containers

Instruct your receiving department to document any damage to the shipping container with the shipper at the time of delivery acceptance. Also, check for tripped tilt/shock sensors located on the outside of the container.

If possible, take pictures of any visible damage and then refer to www.gelifesciences.com/contact to report the damage.

NOTICE
Do not unpack the container! An authorized GE representative will perform the unpacking. Unpacking by any person not authorized by GE constitutes responsibility for the equipment and any damage that may have occurred during shipment, which may void the warranty.

A GE Field Service Engineer will install the system on the planned installation date. Once the installation is complete, a GE Field Application Scientist will follow up with on-site training, covering basic system operation according to the agreed upon schedule.

Important Installation Note!

Due to the size of some IN Cell Analyzer system components, moving them up or down stairs is not possible. If an elevator is not available, or if the elevator present is not able to accommodate the weight or dimensions of the various IN Cell Analyzer components, please contact GE as soon as possible to discuss alternative methods for installing the equipment.

Doors, corridors, and elevators should have a minimum width of 96.5 cm (38 in.) and a minimum height of 2 m (6.5 ft) to allow transport of the system to its installation location.

A forklift or pallet jack capable of carrying up to 177 kg (390 lbs) is required when moving the system while in its shipping crate. A suitable lifting device must be used when lifting or moving the instrument.

3.2 System packaging

Inspect the packaging and system components as follows:

- Inspect the Shock Watch and Tilt Sensors located on the crate. Note if any of the sensors have been tipped, but do not reject the system at this time.
- Visually inspect the instrument for shipping damage. Note any system damage.
- Check the equipment for any apparent damage before starting installation.

Document any damage carefully and contact your GE representative.

Storage

If the IN Cell Analyzer should need to be stored prior to installation, the following requirements should be met.

- Ambient temperature 0°C to 60°C (32°F to 140°F)
- Relative humidity 10% to 95%, noncondensing

Uncrating the system

This section describes the conditions required to uncrate the system.

NOTICE
Do not attempt to uncrate the system yourself. The IN Cell Analyzer system and peripherals, such as the workstation, monitor, keyboard, and mouse, must be unpacked and installed by a GE representative ONLY.

Floor space needed to uncrate the system is 2.4 x 1.2 m (8 x 4 ft).

3.3 Facility requirements

This section describes the electrical and environmental requirements for the IN Cell Analyzer.

Parameter	Requirement
Electrical power	100-120/200-240 VAC, 50/60 Hz, 5A/2.5A Overvoltage Category: CAT5 Power consumption: 500 W
Temperature	Operating temperature: Stable from 18-24° C (64-75° F) Fluctuation rate: No more than ±2° C over four hours with an hourly variation of no more than 1° C. Fluctuations may introduce alignment drift into system.
Humidity	20-80%, noncondensing
Altitude	Up to 2000 m (6561 ft)
Operating Environment	Pollution Degree 2, IPXO
Optional Live Cell Imaging Module	Clean Dry Air (CDA): Regulated to 25 psi (1.7 Bar). If using shared facility air source, water trap required to facilitate dry air. CO_2 and N_2 tanks (N_2 only if using CO_2/O_2 option): Also regulated to 25 psi (1.7 Bar).

Affects on the facility

Noise production:

- IN Cell Analyzer 2500*HS* < 70dB
- IN Cell Analyzer 6500*HS* < 60dB

Thermal energy contribution:

- IN Cell Analyzer 2500*HS* and IN Cell Analyzer 6500*HS* ~1706 BTU/hr

Facility connections

The IN Cell Analyzer requires three AC ports: 1 for the instrument, 1 for the workstation, and 1 for the monitor.

Systems with the Live Cell option also require 6 mm (1/4 in.) OD nylon or polyurethane tubing connected to CDA, CO_2, and N_2 sources (N_2 only if using CO_2/O_2 option).

Internet access is required for licensing and remote access. An Ethernet CAT5e or better cable (CAT6 is preferred) is required to connect the system to the local facility's network. CAT6a (or better) is required for sites using 10Gb Ethernet.

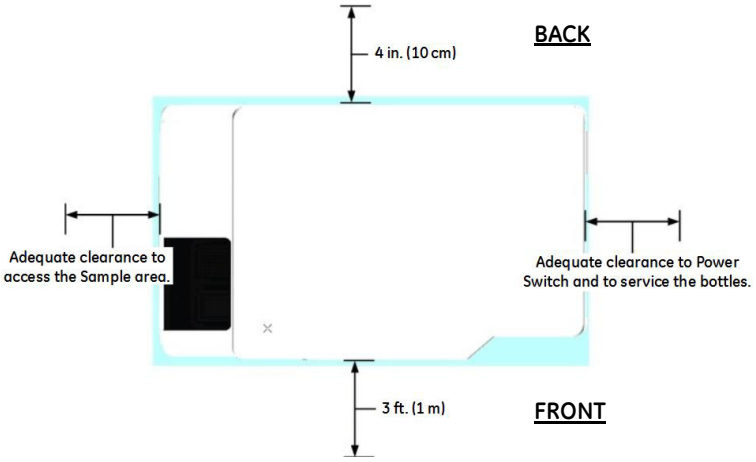
Equipment and working area

The IN Cell Analyzer instrument dimensions are 115 x 66 x 64 cm (45 x 26 x 25 in.) (W x H x D) with the footprint being W x D.

- During operation, there must be adequate clearance on the right of the system to change bottles in the Bottle Holder panel. There must be adequate clearance on the left side of the system to remove the Filter Cover Panel and service the filter.
- A minimum of 10 cm (4 in.) of clearance between the rear of the Instrument and the wall to allow for adequate cooling air flow.
- 10 cm (4 in.) of clearance is required between the left side of the instrument and any object to allow access to the sample loading area and service the filter.
- 15.25 cm (6 in.) of clearance is required between the right side of the instrument and any object to allow access to the power switch and bottle shelf.
- If the optional Liquid Handler option is purchased, space below the instrument is required to place two waste receptacle bottles and associated drain tubing from the bottles.
- To allow service and maintenance access, up to 1 m (3 ft) of free space around the system may be required during a service visit. This may require the system to be moved to a different location during a service visit if additional space is required.

The instrument weighs approximately 107 kg (236 lbs). A suitable lifting device must be used when lifting or moving the device.

Normal operation clearance requirements



Workstation

The supplied Ethernet cable used to connect the workstation to the instrument is 2.1 m (7 ft) long. A table for the workstation and monitor is not provided. The workstation must

be positioned within 2.1 m (7 ft) of the right side of the instrument, or 0.3 m (1 ft) of the left side of the instrument.

IT requirements

The following information provides general IT requirements for the IN Cell Analyzer.

Internet access

Internet access is required to activate licensing and for remote troubleshooting.

Network configuration summary

- Scanner IP address: 159.159.159.1
- Workstation network card IP address dedicated to instrument: 159.159.159.3

The following ports must not be blocked:

- 22/TCP, UDP Secure Shell (SSH)
- Port 51684 is used by the IN Cell Analyzer application
- Port 51234 on the Instrument is used by the IN Cell Analyzer application (configurable in the IN Cell Analyzer[2500 or 6500].xml file)
- Port 9999 by default is used for remote control (configurable in the IN Cell Analyzer[2500 or 6500].xml file)
- Port 50012 is used for the optional Live Cell Imaging Module

User accounts

New user accounts setup on the system must adhere to the following:

- GE requires Administrator level access for the installation of software updates. This access level must also be permitted for service and diagnostics.
- User accounts must allow write access to the following folders:
  - C:\Program Files\GE Healthcare\
  - C:\Program Files\Common Files\

Remote Control

IN Cell Analyzer is compatible with remote control software. Some customization by the remote control supplier may be required in order for the third-party software to properly control the IN Cell system. Contact your sales representative for details.

4 Operation

About this chapter

This chapter describes the most basic procedures required to create and run a protocol.

4.1 Loading a plate

To load a plate into the IN Cell Analyzer plate carrier:

1 Click the **Eject** icon on the Main toolbar. The access door on the top-left of the instrument slides open.

2 Firmly seat the plate in the plate carrier.

Insert a plate into the plate carrier

Note: *To avoid finger prints, always grip the microtiter plates by the plate edges.*

3 Click the **Load** icon on the Main toolbar or click on a well location within the Plate/Slide View window to close the access door.

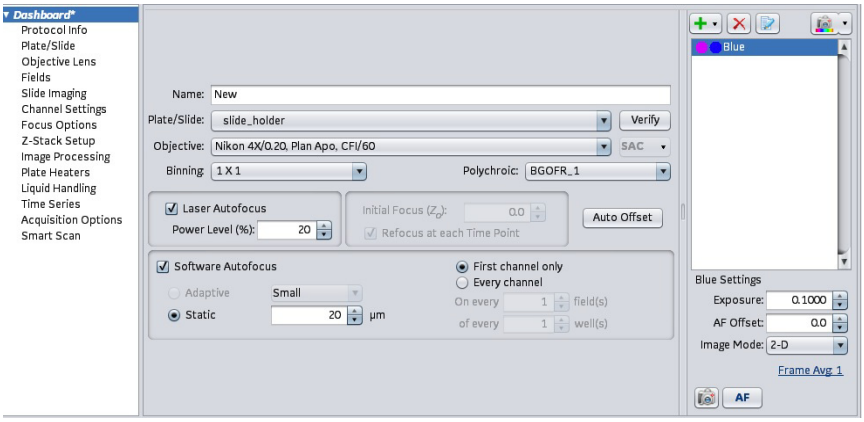
If you are using the Live Cell Imaging Module option, ensure that you secure the lid squarely on the plate and connect the CO_2 and power source correctly.

4.2 Overview of the Setup Mode

Setup Mode is used to define the scan parameters. The most commonly used settings can be controlled from the Dashboard. Detailed settings are available in the "cards" listed under the Dashboard heading on the left side of the window. Progression through each of these cards can be sequential or random.

Note: *For basic experiments, not all cards will be needed.*

Setup Mode



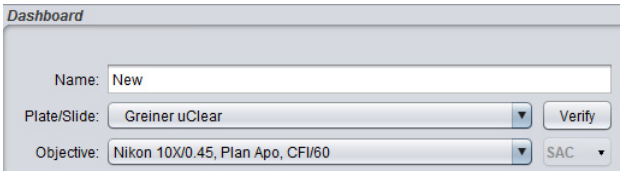
4.3 Focusing on the sample

1 In the **Name** field, enter a descriptive protocol name. This name will be used to reload the protocol for future scans.

2 From the **Plate/Slide** drop-down list, select the plate or slide type.

3 From the **Objective** drop-down list, select the appropriate lens.

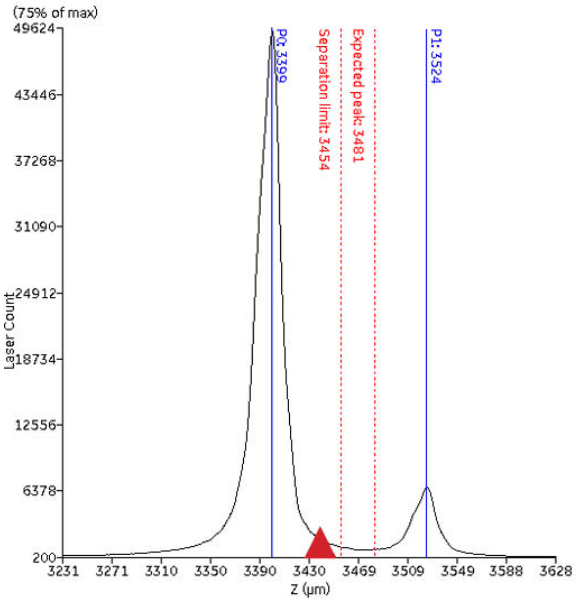
Dashboard settings for creating a new protocol



4 Click **Verify** to confirm your plate type matches the map selected. Compare the position of Peak 0 (P0) with the red arrowhead and compare Peak 1 (P1) with the dashed red line.

- If the expected values differ from the measured values by more than 10%, create a new plate map, as defined in the application guide “Adding a plate map” (29258821).
- If the expected values differ from the measure values by less than 10%, no changes are required. Close the Laser Autofocus tool.

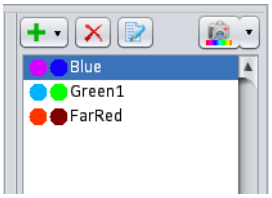
Laser Autofocus trace



4.4 Setting channel parameters

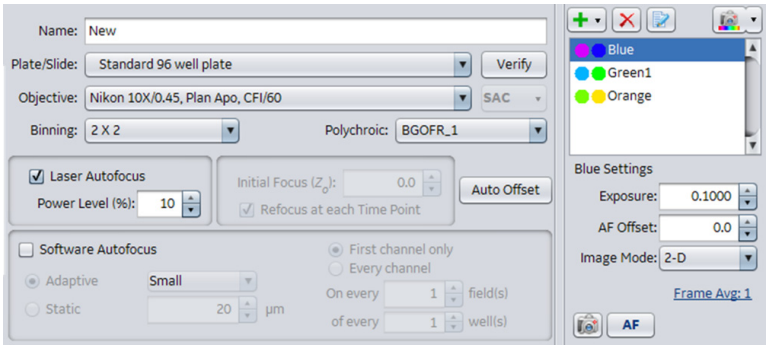
1 Click the **Add New Channel** button  to display a list of available channels. Choose the channels that most closely match the labels in your sample.

Choose dyes for your sample



2 (*Only if using the IN Cell Analyzer 2500HS*) Select the appropriate polychroic from the **Polychroic** drop-down list.

Setting channel parameters



3 Click the **Auto Offset** button to use both LAF and Software Autofocus to find the focal plane for each channel. Click **OK** to apply the offsets.

4 Select a channel and then click the **AF** button.

5 Adjust the value in the **Exposure** field to target 10000 to 20000 counts for fixed cells or approximately five times the background count value for live cells.

Refer to the Min, Max, and Mean values at the bottom of the image panel when optimizing exposure times.

We recommend that you keep the Max value below 45,000 counts to help avoid saturation (65535 counts) during the scan.

6 (*Only if using the IN Cell Analyzer 6500HS*) If your sample is thick or has a high background count, try imaging in confocal mode as described in the following steps.

a) Clear the **Open Aperture** check box.

b) Adjust **Aperture** (AU) as needed on a channel-by-channel basis. Smaller values are more confocal while larger values are similar to the Open Aperture mode.

c) If necessary, refine the exposure as described in Step 5 of this procedure after adjusting the aperture settings.

7 Repeat Steps 4 through 6 for all channels.

8 From the **Image Mode** drop-down list, select the image mode required for your experiment. For normal situations, select the "2-D Image Mode."

4.5 Selecting fields to image

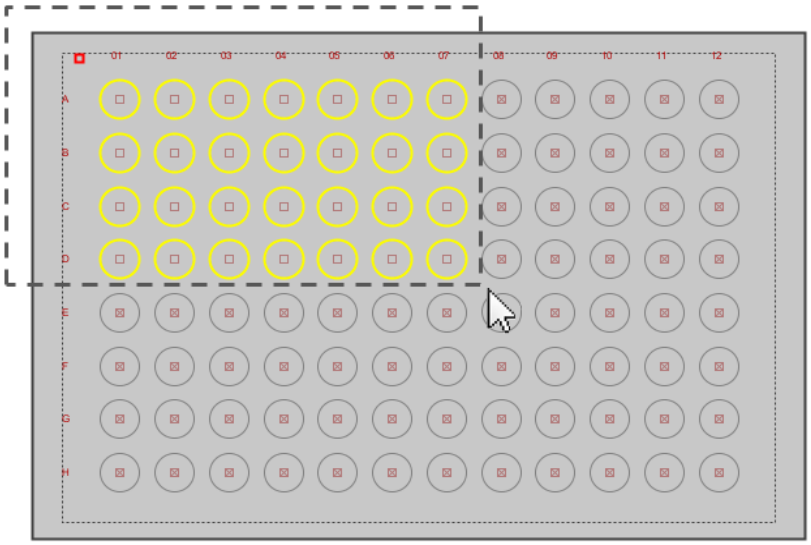
To clear selected fields:

- Hold down the SHIFT key while dragging the mouse cursor over the fields.

To select fields to image:

- In the Plate View, hold down the CTRL key while dragging the mouse cursor over the fields of interest.

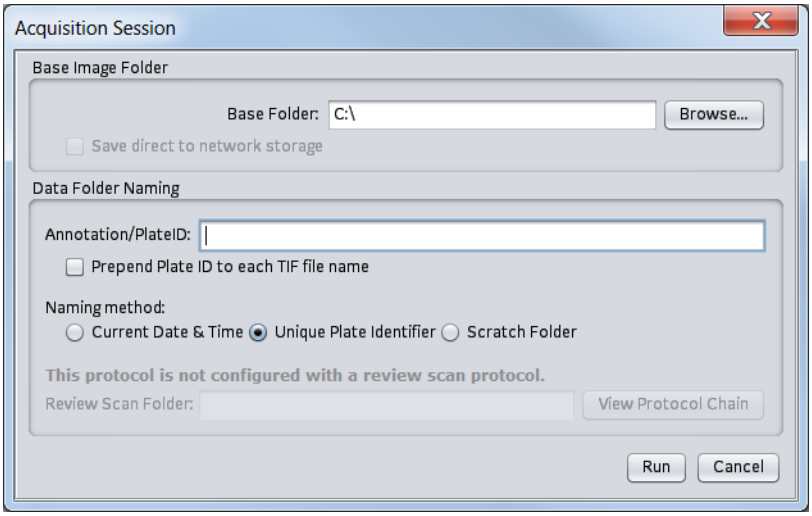
Select fields to image



4.6 Starting the scan

1 In the main toolbar, click the Run Protocol icon Scan to open the Acquisition Session dialog box. (The acquisition protocol will be saved automatically if any changes have been made.)

Acquisition Session



2 In the **Base Folder** field, specify the location to save the data.

3 Select a naming method for the results folder.

4 Click **Run** to start the scan.

5 Maintenance

About this chapter

The IN Cell Analyzer requires minimal maintenance and cleaning. This chapter describes the few procedures required to clean and maintain the system.

5.1 Daily checks and routine maintenance

The following processes should be performed on a regular or daily basis, on a schedule defined by your local data administrator.

Data Back Up

It is recommended that you back up the data files and programs in the computer workstation in accordance with procedures defined by your local data administrator.

Environmental Checks

Check that the room where the IN Cell Analyzer is being used meets the environmental requirements listed in the GE Healthcare Site Preparation Guide provided by the Field Service Engineer prior to installation.

Cleaning the System

Do not attempt to clean any components located within the system enclosure panels.

To clean dust and dirt from the outside of the instrument:

1 Disconnect the system from power.

2 Wipe down the system using a lint free cloth slightly moistened (but not soaked) with 70% ethanol.

3 Wait until all parts are dry before running any experiments.

CAUTION
Ensure that no liquid has penetrated the enclosure before you reconnect the system to the mains power supply.

WARNING
Always disconnect the mains power supply prior to using any liquid cleaners, or other liquids, near or on the system.

WARNING
Always disconnect the mains power supply prior to removing any part of the system enclosure.

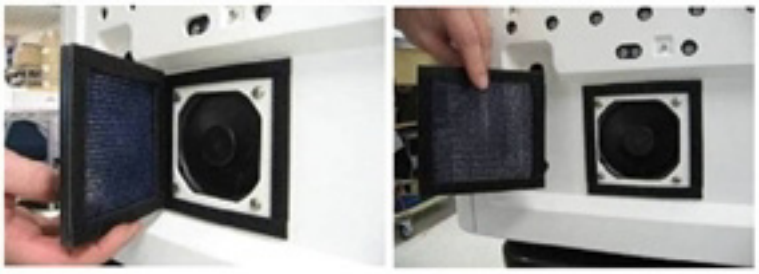
To clean the air filter:

1 Remove the system's left side cover as shown in the following figure. The cover is held in place with pressure pins that release when pulled.

Remove the left side cover

2 Remove the air filter from the IN Cell Analyzer system's air intake as shown in the following figure. The air filter is held in place with heavy duty hook and loop fasteners and may require significant effort to be removed.

Remove the air filter



3 Clean the air filter mesh using a vacuum cleaner. Be sure to get the mesh as clean as possible.

4 Return the air filter to its original position on the IN Cell Analyzer system. Press it into the hook and loop fastener to make sure it is firmly seated.

Replace the air filter

5 Install the left side panel. Press the panel firmly over the pressure pins until you feel the pressure pins lock into place. It may be necessary to strike the panel with the palm of your hand directly over the pressure pins to seat them.

Install the left side panel

5.2 Live Cell humidifier bottle (option)

CAUTION
Use caution when using any liquid cleaners, or other liquids, near or on the system.

WARNING
If any liquid is spilled on or around the instrument electronics, unplug the instrument immediately and wipe up the spill. DO NOT PLUG THE SYSTEM INTO ANY POWER MAINS UNTIL THE PROBLEM IS RESOLVED.

The fluid level of the humidifier bottle should be 1/4 to 1/2 full at all times. Be sure to check the fluid level prior to starting any live cell experiment. We also recommend replacing the fluid if the instrument has been idle (not in use) for 30 days.

The fluid storage bottle for the Live Cell Module's humidification system is located behind two sliding access doors on a shelf located on the side of the IN Cell system farthest from the sample access door.

Location of Humidifier Bottle

To refill the humidifier bottle:

1 In the Main Status Window of the Live Cell Imaging control software, turn off the temperature, CO_2, O_2 (if applicable), and flow controls.

2 Slide open an access door to the storage shelf and gently lift out the humidifier bottle.

3 Remove the heating element and bubbler from the bottle by unscrewing the cap on the bottle.

Remove Lid (heater and bubbler attached)

4 Remove the insulation sleeve from the bottle and set it down in a safe place.

5 Using room temperature to slightly warmed sterile, distilled water, fill the bottle 1/4 to 1/2 full. Do not fill the bottle more than 1/2 way as doing so may contribute to water splashing into the tubing.

6 Replace the lid and insulation cuff on the bottle and gently set the bottle back on the shelf.

Replace Insulation Cuff and Lid

7 Close the door to the fluid bottle compartment.

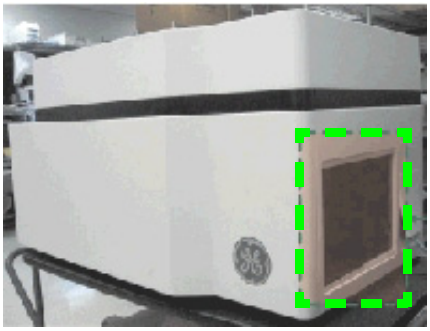
8 In the Main Status Window of the Live Cell Imaging control software, turn the appropriate controls back on.

The system is ready to scan a sample.

5.3 Liquid Handler reagent and wash bottles (option)

The fluid storage area for the Liquid Handler module's reagent and wash bottles is located on the right side of the IN Cell Analyzer system, farthest from the access door.

Reagent and wash bottle storage area



Always fill the reagent and wash bottles to appropriate levels before beginning a Liquid Handler experiment.

Always inspect the waste receptacles and their tubing. Inspect the red tubing for liquid. Contact your GE representative if there is any liquid in the red tubing.

After your experiment is completed, flush the pump with a solution of (minimum) 91% Isopropyl Alcohol at 130 µl per second for two minutes. This keeps the pump primed for the next liquid handling experiment..

CAUTION
Use caution when using any liquid cleaners, or other liquids, near or on the system.

WARNING
If any liquid is spilled on or around the instrument electronics, unplug the instrument immediately and wipe up the spill. DO NOT PLUG THE SYSTEM INTO ANY POWER MAINS UNTIL THE PROBLEM IS RESOLVED.

To fill the reagent and wash bottles:

1 Slide open the fluid compartment door to access the fluid storage area.

2 Fill the bottle with the appropriate liquid and then place it back on the bottle shelf.

3 Connect the delivery tubing to the wash and reagent fluid storage bottles through the cap. The tubing is appropriately labeled for the wash and reagent bottles.

4 Close the door to the fluid compartment.

5 Click the Liquid Handling icon in the main toolbar to display the Liquid Handling window.

5.4 Mains power troubleshooting

WARNING
The instrument must be decontaminated before it is sent for repair or decommissioned.

WARNING
System repairs or modifications must be performed by GE personnel.

WARNING
Always disconnect power from the system before replacing any component unless otherwise stated in the user documentation.

The following process describes what to do if the workstation, monitor, or imager will not turn on.

To troubleshoot power issues with the workstation, monitor, or imager:

1 Turn off the workstation, monitor, and imager using their main power switches.

2 Check that the mains power source is providing power (by connecting another electrical item to the power outlet). If the mains power source does not work, contact your local maintenance department before proceeding.

3 Check that the main power cable is connected correctly and that the plugs are firmly located in the sockets.

4 Test the workstation, monitor, or imager again by attempting to turn it on.

5 If the selected component still does not work, contact your local GE service engineer.

5.5 Spare parts and accessories:

For up-to-date information on spare parts and accessories, visit www.gelifesciences.com/incell.

Notice to purchaser
The IN Cell Analyzer 2500HS and IN Cell Analyzer 6500HS systems are for research use only. They are not for use in diagnostic procedures in humans or animals.

For local office contact information, visit:

www.gelifesciences.com/contact

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